

Natural History Collections Research: A Record of the Past and a Resource for the Future

EEB 496/607 - One credit (7-week) course

Fall 2018 - Mondays from 5:00-6:40pm - September 10th to October 22nd

Natural history collections are a physical record of our planet's biology across space and time, and are a critical part of modern biodiversity research. This course will introduce students to cutting edge collections-based research. We will explore critical questions in conservation management, invasive species biology, anthropology, paleontology, ecology, evolution, scientific ethics, and advocacy that are informed by data from natural history collections.

During this course, students will visit a variety of research and teaching collections on campus, including (but not limited to) the ichthyology, malacology, botanical, and fungal collections. Students will gain hands on experience with research specimens and the metadata associated with them. We will have presentations from guest instructors (e.g., collections managers, curators, directors, faculty) who work with natural history collections sharing their approaches to curating collections as well as their integration of specimens into their ongoing research projects.

Primary Instructors

Dr. Nikisha Patel, Postdoctoral Researcher, Dept. of Ecology and Evolutionary Biology & UTK Herbarium

Dr. Jessica Budke, Director, UTK Herbarium & Assistant Professor, Dept. of Ecology and Evolutionary Biology

Guest Instructors

Dr. Melanie Beasley, Haslam Postdoctoral Fellow, UTK Forensic Anthropology Center

Gerry Dinkins, M.S., Curator of Malacology, McClung Museum of Natural History & Culture

Jennifer Joice, M.S., Collections Manager, Etnier Ichthyological Collection

Dr. Ben Keck, Director, Etnier Ichthyological Collection & Adjunct Assistant Professor, Dept. of EEB

Dr. Árpád Nyári, Research Assistant Professor, Dept. of Ecology and Evolutionary Biology

Dr. Colin Sumrall, Assistant Professor of Paleobiology, Dept. of Earth and Planetary Sciences

Learning Objectives - What will you get from this course?

At the end of this course you will be able to:

- create, curate, and database natural history specimens.
- locate and mine metadata associated with biodiversity specimens.
- integrate collections into research questions in your field.
- evaluate and critique ethical questions surrounding biodiversity specimens.
- communicate the importance of collections to members of the public.
- advocate for the preservation and usefulness of collections.

Graduate students and advanced undergraduate students from any discipline are welcome to attend, including (but not limited to) anthropology, geography, paleontology, botany, plant sciences, plant pathology, forestry, entomology, wildlife, zoology, animal science, ecology, evolution, conservation, information science, science education, and science communication.

Advanced undergraduate students can register by contacting Dr. Nikisha Patel <npatel70@utk.edu>.

Course Meetings

The course will meet once per week for 7 weeks either at one of the natural history collections on campus or in 304 Hesler Biology Building. This is a 1 credit hour (half-semester) course that will meet on Mondays from 5:00-6:40pm for 7 weeks from September 10th - October 22nd.

Each class meeting time will be divided into three sections where students will either tour a collection, gain hands on experience with a collections-based activity, discuss a paper related to collections research, or listen to a presentation from and engage in discussion with an expert.

Grades will be based on attendance, engagement with the hands-on activities, and discussion participation.

Tentative schedule that may be subject to updates.

Date	Instructor	Where to meet for class	Collection Tour	Hands-on Experience	Paper Discussion	Presentation and Discussion with an Expert
Sept 10	Patel and Budke	Temple Hall First Floor 1818 Andy Holt Blvd.	Plant/Fungal herbarium	Herbarium specimen preparation		Plant/Fungal research
Sept 17	Keck and Joice	515 Hesler Biology Bldg.	Etnier Ichthyological Collection	Fish specimen preparation		Ichthyological research
Sept 24	Dinkins	McClung Museum 1327 Circle Park Dr.	McClung Museum Mussel Collections	Mussel Collections	Mussel Ecology	
Oct 1	Nyári	304 Hesler Biology Bldg.		Bird collection preparation	Ethics in field collection	Planning an international collecting trip
Oct 8	Sumrall, Patel, and Budke	304 Hesler Biology Bldg.		Mining collections databases	Collections use in earth and planetary science research	Fossil echinoderm research
Oct 15	Beasley	304 Hesler Biology Bldg.	Human skeletal remains		Ethics in handling human remains	Isotope analysis for human migration
Oct 22	Patel and Budke	304 Hesler Biology Bldg.		Online collections for outreach and engagement	Collections research and big data	Collections advocacy